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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,493	03/07/2002	Yuusuke Takamoto	381NT/44743TCO	2343

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CROWELL & MORING, L.L.P.
P.O. Box 14300
Washington, DC 20044-4300

EXAMINER	
VANAMAN, FRANK BENNETT	
ART UNIT	PAPER NUMBER
3618	

DATE MAILED: 06/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/091,493	TAKAMOTO ET AL.	
	Examiner	Art Unit	
	Frank Vanaman	3618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 March 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,3,5-11,13 and 14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2, 3, 5-11, 13 and 14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Status of Application

1. Applicant's amendment, filed March 1, 2004, has been entered in the application. Claims 2, 3, 5-11, 13 and 14 are pending, claims 1, 4, and 12 having been canceled.

Claim Objections

2. Claim 3 is objected to because it depends from a canceled claim. Claim 3 is written so as to depend from claim 4 which has been canceled. In view of new claim 14 being similar in nature to previously pending claim 12, claim 3 is assumed dependent from claim 14.

There appears to be a non-initialed, hand-marked amendment to claim 3 in the region of the numeral '4' however after scanning, it is not possible to read this hand-marked text. Applicant should note that that indistinct hand-marked changes on amendment papers may not scan well enough to be legible.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior office action.

4. Claims 3 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takamoto et al. (US 5,467,275). Takamoto et al. teach an electric vehicle having a body (1) and a motor (3) which drives vehicle wheels and which may further be used to hold the vehicle in a stopped position (col. 1, lines 59-63) even when pressure on a brake pedal is released, and having a portion (314-315) for calculating a torque (R) which corresponds to at least a brake operation quantity (b*; Tb*) measured by a depression of the brake pedal (Xb), and a second portion (311, 313) which provides positional control (based on a signal Y from a position encoder) feeding a torque command (note that motor torque directly corresponds to a current supplied to the motor by the controller, the resulting commands output from portion 314 to the motor in either torque or position control modes are torque outputs), the torque values being stored in a microprocessor which performs the operating steps, the motor used to maintain the vehicle in a stopping position, wherein for a time period which corresponds to the time

between an operator removing pressure from a brake pedal and applying pressure to an accelerator pedal, the control holds the vehicle at a constant position (Sp=ON, col. 5, lines 21-27), and further wherein an option is provided such that under the operation of a switch (913) the vehicle is allowed to move a distance (i.e., the constant position control is temporarily released, and the torque command to the motor is changed) from the held position, and is again stopped (col. 12, lines 7-18). The reference to Takamoto et al. fails to teach the use of a minimum torque for maintaining the vehicle at a stopped position, however in view of the reference teaching the holding of a stopped position by a torque sufficient to hold such a position, it would have been obvious to one of ordinary skill in the art at the time of the invention to arrange the operation of the controller to use no more torque than needed to maintain the stopped position in order to reduce heating in the transistor drivers or inverter, and to save energy.

5. Claims 2, 9, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takamoto (Cited above) in view of Siepker (US 5,916,062). Takamoto et al. teach an electric vehicle having a body (1) and a motor (3) which drives vehicle wheels and which may further be used to hold the vehicle in a stopped position (col. 1, lines 59-63) even when pressure on a brake pedal is released, and having a portion (314-315) for calculating a torque (R) which corresponds to at least a brake operation quantity (b*; Tb*) measured by a depression of the brake pedal (Xb), and a second portion (311, 313) which provides positional control (based on a signal Y from a position encoder) feeding a torque command (note that motor torque directly corresponds to a current supplied to the motor by the controller, the resulting commands output from portion 314 to the motor in either torque or position control modes are torque outputs), the motor used to maintain the vehicle in a stopping position, wherein for a time period which corresponds to the time between an operator removing pressure from a brake pedal and applying pressure to an accelerator pedal, the control holds the vehicle at a constant position (Sp=ON, col. 5, lines 21-27), and further wherein an option is provided such that under the operation of a switch (913) the vehicle is allowed to move a distance (i.e., the constant position control is temporarily

released, and the torque command to the motor is changed) from the held position, and is again stopped (col. 12, lines 7-18). The reference of Takamoto et al. fails to teach the torque applied to maintain the vehicle in a stopped position as corresponding to an amount of brake pedal depression. Siepker teaches a vehicle system for maintaining a stopped position after a user has exerted a braking force, wherein a braking pressure exerted by the operator is measured, and a secondary system generates a pressure corresponding to that pressure applied by the driver, in order to hold the vehicle. See step 12, and col. 4, lines 25-35. It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the concept taught by Siepker of deriving a quantity of holding force from the braking force generated by the operator for holding the vehicle of Takamoto et al. in a stopped position, for the purpose of insuring that at least a force deemed sufficient by the operator would be applied to the vehicle, insuring that the vehicle would indeed be held positively at a stopping position.

6. Claims 5, 6, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takamoto et al. in view of Hotta (US 5,934,398). The reference to Takamoto et al. is discussed above and fails to teach the holding torque applied to the motor to hold the vehicle position as being reduced after a time period. Hotta teaches a vehicle motor control system for driving a motor (11) which determines a stopped state of the motor, for example while holding on a hill (col. 5, lines 38-52), and calculates a time period (72, 73) after which the current supplied to the motor is decreased (61) for preventing degradation of or damage to the switching transistors (21-26). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a timer and motor current (and thus motor torque) limiting device as taught by Hotta to the vehicle of Takamoto et al., for the purpose of preventing damage to the motor controller of Takamoto et al., for example while holding a constant position for a lengthy time period.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takamoto et al. in view of Hotta and Siepker. The references of Takamoto et al. and Hotta are

discussed above, and fail to teach a hydraulic brake device for holding the vehicle in a stopped position upon the decrease of holding torque delivered by the motor. Siepker teaches a hill-holding device which determines a braking pressure required to hold a vehicle in a stopped position and applies a corresponding braking force through a vehicle's existing hydraulic braking system (note col. 1, lines 54-58; col. 2, lines 19-28) by an independent actuating element separate from the user-operated brake pedal circuit. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide an independent actuator as taught by Siepker for actuating an existing friction braking system of the vehicle of Takamoto et al. as modified by Hotta, the independent actuator responsive to the operation of the current limiting device as taught by Hotta, for the purpose of providing a braking force from a separate source than the motor, such that during a reduction of motor torque due, for example, to overheating of the control transistors, the vehicle may still remain stopped without the intervention of a user, in order to render the stopped-position holding process transparent to the operator of the vehicle.

Response to comments

8. Applicant's comments have been carefully considered. As regards applicant's comments directed to the reference to Takamoto et al. and the application of a minimum torque, the examiner does not agree. Firstly, the examiner is not suggesting that the reference explicitly teaches this limitation. Secondly, in view of the reference teaching the application of a sufficient torque to hold the position, and the lacking of the reference teaching that *any more* than a sufficient amount of torque is applied, it is not deemed to be beyond the skill of the ordinary practitioner to apply only the quantity of torque needed to hold the position, and, particularly in view of the absence of any contradictory teachings in the reference to Takamoto, it is not deemed to be beyond the skill of the ordinary practitioner to apply a minimum amount of torque so as to not waste un-needed current and to prevent un-necessary extra heat generation in the driver circuits.

In response to applicant's argument that the references must explicitly provide a suggestion for combining, a conclusion of obviousness may be made from common

knowledge and common sense of the person of ordinary skill in the art without any specific hint or suggestion in a particular reference (see In re Bozek, 416 F.2d 1385, 1390, 163 USPQ 545, 549 (CCPA 1969)), with skill being presumed on the part of the artisan, rather than the lack thereof (see In re Sovish 769 F.2d 738, 742, 226 USPQ 771, 774 (Fed. Cir. 1985)); further, references may be combined although none of them explicitly suggests combining one with the other (see In re Nilssen 7 USPQ2d 1500 (Fed. Cir. 1989)). It has long been the law that the motivation to combine need not be found in prior art references, but equally can be found "in the knowledge generally available to one of ordinary skill in the art." In re Jones, 958 F.2d 347, 351 (Fed. Cir. 1992) (citing In re Fine, 837 F.2d 1071, 1074 (Fed. Cir. 1988)).

The motivation to combine can be found either in a prior art reference, or it can be implicit in the knowledge of one of ordinary skill in the art. See In re Huston, 308 F.3d 1267, 1280 (Fed. Cir. 2002); Motorola, Inc. v. Interdigital Tech. Corp., 121 F.3d 1461, 1472 (Fed. Cir. 1997).

Sources suggesting a combination may be: (1) the combined teachings of the prior art, (2) the knowledge of the ordinary practitioner and (3) the nature of the problem to be solved. "The test for implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed.Cir. 2000).

In Richard Ruiz and Foundation Anchoring Systems, Inc. v. A.B. Chance Company, No. 03-1333 (Fed. Cir. January 29, 2004), the court emphasized that an "express written teaching in the art" to combine references was not required [emphasis added]. Rather, motivation may come from "the nature of a problem to be solved, leading inventors to look to references relating to possible solutions to that problem."

Please further note the following from Section 2144 of the MPEP: "The rationale to modify or combine the prior art does not have to be expressly stated in the prior art or it may be reasoned from knowledge generally available to one of ordinary skill in the art, established scientific principles, or legal precedent...The reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose

or to solve a different problem...It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by Applicant." Also Chief Judge Nies writes in a concurring opinion, "While there must be some teaching, reason, suggestion, or motivation to combine existing elements to produce the claimed device, it is not necessary that the cited references or the prior art specifically suggest making the combination...In sum, it is off the mark for litigants to argue, as many do, that an invention cannot be held to have been obvious unless a suggestion to combine prior art teachings is found in a specific reference". See In re Oetiker 977 F.2d 1443, 24 USPQ.2d 1443 (Fed.Cir.1992).

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to F. Vanaman whose telephone number is 703-308-0424. Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is 703-308-1113.

As of May 1, 2003, any response to this action should be mailed to:
Mail Stop _____
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450,
Or faxed to one of the following fax servers:
Regular Communications/Amendments: 703-872-9326
After Final Amendments: 703-872-9327
Customer Service Communications: 703-872-9325

F. VANAMAN
Primary Examiner
Art Unit 3618

5/25/04